

NATURE'S

Grapevine

WASHINGTON CROSSING STATE PARK, NJ

Spring 2009

Indian Canoes of New Jersey

By
Jim Wade

Several thousand years ago, the Native Americans who lived here in New Jersey had only two forms of travel: by foot and by watercraft. Of course, the local people had not developed the wheel and livestock such as horses were not used. Foot travel, was the principal and preferred way of getting from one place to another, the later probably came into use around three thousand years ago. These early watercrafts were a very important adaptation to the Native Americans' survival. We know the later historic Lenape Indians of our state used canoes, or more specifically, dugout canoes. The Indians of New Jersey took advantage of the state's many waterways to travel in canoes that were carved out of huge logs. Dugout canoes were used mostly for travel, but were also used for hunting, fishing, gathering a variety of foods, and for trade on the rivers, lakes, bays, and along the shoreline. On coastal areas around New York Bay, Delaware Bay, and Long Island Sound, along with many other coastal regions, dugout canoes were absolutely necessary and quite plentiful in use. Henry Hudson, on his third voyage to America, in 1609, entered the New York Bay area, and was visited by "eight and twenty canoes full of men, women, and children." (2) The Lenape referred to canoes in their own language as *amochel*



Dugout canoes were carved from tree trunks with the use of stone tools and fire

Photo: Jim Wade

Dugout canoes and possibly rafts were indispensable for travel on inland bays and rivers; these dugouts would have been very useful in crossing lakes and marshland streams in the Indians' search for bird eggs, turtles, and frogs, and most importantly, for catching fish. Canoes could also be used for gathering a variety of edible and useful plants, such as cattails, sedges, and wild rice. (*continued next page*)

100TH BIRTHDAY CELEBRATION

It may be three years away, but staff are organizing a 100th birthday party for Washington Crossing State Park. Back in 1912, the park was set aside to memorialize the heroic crossing by the Continental Army that famous night back on December 25, 1776. We are focusing our efforts on those people who actually worked in the park over the past 100 years. So, it would be helpful to us if you could send in any general items, such as news articles, photos, flyers, etc about the park and we will combine that information with those who were working here during that era. If anyone has names and addresses of past employees, whether full time, seasonal or volunteers, please pass them along to us as we need to start organizing our database. Please send all information to the address on this newsletter. Inquiries can be e-mailed to WCSPsupt@Comcast.net.



Along the Atlantic shore, bays, and inland rivers, beds of marine or freshwater shellfish could be found and exploited more easily via dugout canoe. Trade and transportation of heavy, bulky or cumbersome items, was made more advantageous and favorable over distances, by such watercrafts. The reason dugout canoes were essential for crossing large bays, lakes, and rivers, was because the Indians had no type of bridges except for large stepping stones that might have been placed across shallow streams to aid in crossing. Canoes also helped in long distance travel, upstream and down, when traveling to and from villages, hunting and fishing territories, and to and from stone resources for quarrying purposes.

The Indians' chief mode of transportation had always been by foot. In fact, the Indians often considered rivers and streams as an obstacle to travel rather than an asset. The canoe was probably considered as a supplemental form of travel for the following reasons: Many streams and rivers were not suitable for through travel between one place and another. Some waterways were seasonal and become unnavigable during droughts and dry times of the year. Other streams and rivers contained sections of white water and falls that rendered them too treacherous to negotiate. Also, some rivers such as the Delaware become too high and swift during winter and spring floods to safely travel in small handmade watercrafts. Swift moving bodies of water were certainly useful for traveling in the downstream direction but presented problems on the return journey. Rivers and navigable streams of course, do not traverse mountains and ridges. Often the people would have to leave their canoes and portage over high ridges before they could find navigable water flowing in sections of the rivers. Foot travel over open ground was relatively easy and convenient and canoes would be less useful than in the minority of places where the forests were too dense for foot travel.

The Indians of New Jersey made two types of canoes, the dugout style and the bark style. Dugout canoes were fashioned out of pine, oak, sycamore, and chestnut trees. However, hollowing out the trunk of the yellow poplar or tulip tree made the best dugout canoes. The name for this species in the Delaware language was *muxulhemenshi*, or "the tree from which canoes are made." (4). Bark canoes were sometimes made from elm, black oak, and hickory bark. The Delaware or Lenape Indians did not make birch-bark canoes because large paper birch trees were either absent or not very common in the area of New Jersey.

The portage or carrying of canoes at certain places along rivers and streams was important in the days before the introduction of horse and carriage by Europeans, when the Indians used water transportation to carry their animal pelts to market to trade with the early settlers of New Jersey. The name "Canoe Place" (3) is often found on old maps, designating places where canoes were portaged. "Canoe Place" could mean the head of canoe navigation. It also meant the place where new canoes were built for down river journey

Most canoes were of modest size, but some were made quite large. William Wood, an English colonist who immigrated



Dugouts could be as long as fifty feet and hold up to forty passengers.

Photo: Jim Wade

to New England in 1629, was the first to publish an account of early Massachusetts. He noted that a canoe "could be shaped by one man, using stone tools, in ten to twelve days. The largest dugouts were forty to fifty feet long and could carry forty men." (5) John Smith, an early English colonizer who helped establish Jamestown in Virginia in 1607, made a similar claim concerning the size and capacity of the Powhatan Indian canoes in Virginia. David Pietersz De Vries, a Dutch councilman of New Netherlands (1609-1664), mentioned an incident in New York Bay when "twenty of us went sitting in a canoe or hollow-tree, which is their boat, and the edge was not more than a hand's breadth above the water." (6) The dugout canoe was almost unsinkable. It took rough water well and did not split apart if it struck a rock; but it could be awkward at times to control, and large canoes were almost impossible to carry long distances. Canoes were propelled by wooden paddles or by poles.

Dugout Canoe Construction

Large trees had to be felled in order to construct a dugout canoe. In order to do so, the Indians constructed hot fires at the base of a previously girdled and killed tree. When the fire burned out, the charred portion of the trunk was removed by scrapping with stone axes and celts. The process would then be repeated with another fire and yet more scrapping as often as necessary until the tree went down. Water and damp clay or mud was sometimes plastered on the trunk above the fire to protect the needed portion of the tree from fire damage.

When the tree was finally felled, the branches were chopped or burned off and the bark was removed. If the trunk was too long, fire and chopping were used to adjust its length. The tree trunk was then ready to be hollowed out. One side would be split off or adzed flat, and small controlled fires were set along the top to burn steadily down into the log. Adzes and gouges removed the charred fragments and the process was repeated until the interior of the log was hollowed out and the proper depth was obtained. Those sections of wood that were not to be burned were soaked with water or covered with wet clay or

mud. Stone gouges or adzes were useful in further hollowing out the tree trunk of the canoe-to-be until the gunwales and hull were suitably thinned. Then the outside of the canoe was shaped with stone axes or celts, and smoothed into a pointed bow and stern. With the coming of the Europeans and their metal tools in the 17th & 18th Centuries, traditional canoe construction underwent some changes. European iron axes felled trees more quickly and shaped dugout canoe logs more easily than the combination of stone axe/celt and fire traditionally used by the Indians. These new tools would have been adapted to the process of canoe making.

Aboriginal peoples used a variety of primitive tools in order to construct dugout canoes. Large tree trunks were hollowed out by the Indians, with the use of stone axes, celts, (a type of chisel) gouges, polished adzes, and large scrapers. Chipped and polished adzes were important tools used in shaping wooden items; their presence on archaeological sites suggests that the Indians used wood to produce dugout canoes and a variety of other wooden artifacts. One could use an adze in one hand and with the other, strike the stone chisel with a wooden or antler mallet to carve and shape the wood.

The History of Aboriginal Dugout Canoes

The organic materials from which prehistoric canoes and other watercraft were constructed do not survive well in the acid soils of the Northeast and especially New Jersey. For this reason, direct evidence of their use among ancient peoples of the Archaic and Paleolithic Eras (ca. 12000 – 3000 years ago) is not well established. Archeologists generally assume that these crafts were used during these time periods because of the existence of numerous Indian campsites that were located near large rivers, estuaries and in coastal locations. When researchers find stone adzes and three-quarter grooved axes on ancient sites, such as on the Savich Farm Site in Marlton, NJ, they infer that these tools were being used to make dugout canoes.

This reasoning is also applied to sites of the Woodland Period (ca. 3000 – 400 years ago). However, portions of some actual dugout canoes from the end of the Late Woodland Period (ca. 1000 – 400 years ago) have survived the ravages of time. Also, eyewitness accounts of the (Lenape) Indians using canoes are well referenced in numerous documents of early explorers and settlers during the historic period. Some boys found a fragment of a dugout canoe in Huffville, NJ in 1929. That relic is now in the collection of the Gloucester County Historical Society. Other Indian canoes or fragments of canoes have been found in the vicinity of Cape May and Cumberland Counties, near Vineland, NJ and in Bonhamtown, NJ. The remains of one or two dugout canoes are in the collection of the NJ State Museum.

The use of the canoe by the Indians of New Jersey was a great adaptation in traveling the environs and wilderness that surrounded them. The canoe was beneficial for trade with other Indians and advantageous in transportation of Indian families to other villages and new site locations. Thus, the canoe proved to be a great innovation in providing flexibility and versatility to the Indians way of life.

Editor's Note: Jim Wade and a team of researchers have re-constructed a dugout canoe using primitive tools. A publication "Dugout Canoe of the Delaware River Region", detailing the results of the project, will be available in the near future.

End Notes

1. Reading, John, Jr. 1915 "Copy of the Journal Reading, *While Surveying Lands in Northern Part of New Jersey, April 17th to June 10th, 1715*. Proceedings of the New Jersey Historical Society' 10(1). Pg. 41.
2. Juet, Robert 1959 "Juet's Journal: *The Voyage of the Half Moon from 4 April to 7 November, 1609*, edited by Robert M. Lunney. New Jersey Historical Society, Newark, New Jersey. Pg. 30.
3. Wallace, Paul A.W. *Indians In Pennsylvania*. Pennsylvania Historical and Museum Commission. 1961. Second Edition. Revised by William A. Hunter. Harrisburg, 1981. Pg. 46.
4. Rementer, James 1987 *A New Look at Canoes of the Lenape*. Bulletin of the Archaeological Society of New Jersey' 42:32. Also: Cross, Dorothy, 1941 "Canoes of the Lenape." Newsletter of The Archaeological Society of New Jersey' 3:10.
5. Wood, William 1865 *Wood's New England Prospect [1634]*. Publications of the Prince Society 1, Boston, Massachusetts. (Reprint edition, Burt Franklin, New York. 1967). Pg. 102.
6. De Vries, David Pietersz 1909 From the Korte Historical Ende Journals *Aenteyckeninge*, by David Pietersz de Vries, 1633-1643 (1655). *Narratives of New Netherland, 1609-1664*, edited by J. Franklin Jameson, pp. 186-234. Charles Scribner's Sons, New York. (reprint edition, Barnes & Noble, Inc., New York, 1937). Pg. 232.

References

- Cross, Dorothy *The Indians of New Jersey*. The Archaeological Society Of New Jersey. Trenton. Revised 1964.
- Cross, Dorothy *New Jersey's Indians*. New Jersey State Museum Report No. 1. Trenton, New Jersey. 1965.
- James, Bartlett Burleigh B.D., Ph.D., and J. Franklin Jameson, Ph.D., LL.D. *Journal Of Jasper Danckaerts 1679-1680*. Narratives Of Early American History. Charles Scribner's Sons. New York. 1913.
- Kraft, Herbert C. and John T. *The Indians of Lenapehoking*. Seton Hall University Museum. South Orange, New Jersey. 1985.
- Kraft, Herbert C. *The Lenape: Archaeology, History, and Ethnography*. New Jersey Historical Society. Newark. 1986.

(Continued)



Kraft, Herbert C. *The Lenape Indians of New Jersey*. Seton Hall University Museum. South Orange, New Jersey. 1987.

Kraft, Herbert C. *The Lenape-Delaware Indian Heritage - 10,000 B.C. - A.D. 2000*. Lenape Books. 2001.

Newcomb, William W. Jr. *The Culture and Acculturation Of The Delaware Indians*. Anthropological Papers - Museum Of Anthropology, University Of Michigan. No. 10. Ann Arbor, Michigan. 1956. Reprinted 1970.

Philhower, Charles A. *The Aborigines Of Hunterdon County, New Jersey*. Proceedings of the New Jersey Historical Society. Vol. XI. New Series. October 1926.

Philhower, Charles A. *Indian Days In Middlesex County, New Jersey*. Proceedings of the New Jersey Historical Society. Vol. XII. New Series. No. 4. October 1927.

Philhower, Charles A. *South Jersey Indians on the Bay, the Cape and Coast*. Proceedings of the New Jersey Historical Society. Vol. XVI. New Series. No.1. January 1931.

Philhower, Charles A. *Know Your State: Indian Lore Of New Jersey*. Twelve Articles by Charles A. Philhower - Reprinted from Newark Sunday News. By New Jersey Council - Division of Planning and Development. Department of Conservation and Economic Development. (no date/circa 1946?)

Stewart, Frank, H. *Indians of Southern New Jersey*. Publication of the Gloucester County Historical Society. Woodbury, NJ. 1932.

Wacker, Peter O. *Land And People - A Cultural Geography of Pre-Industrial New Jersey: Origins and Settlement Patterns*. Chapter 2: 'The Lenape And Their Significance.' Rutgers University Press. New Brunswick, NJ. 1975.

Wallace, Paul A.W. *The Indians In Pennsylvania*. Historical and Museum Commission. 1961. Second Edition. Revised by William A. Hunter. Harrisburg, PA. 1981.

Jim Wade has worked as a field archaeologist and archaeological field assistant at several Indian sites throughout Central New Jersey. Mr. Wade also worked as an archivist with the NJ State Museum, documenting Native American land holdings in New Jersey from the 17th and 18th centuries. He is a frequent volunteer at WCSP where he assists with our Native American and primitive technologies events. Mr. Wade is available for talks and demonstrations to groups. His email address is: red9hawk@aol.com.

Volunteer Notes

Jim Wade, Princeton, and **Jim Silk**, Hamilton, conducted a presentation on the native peoples of the Paleolithic Period in February. Mr. Wade will return in April and Mr. Silk will be back in June. See the enclosed program listing for details.

Ben Strauss, Titusville, **Nettie Rekowski**, Ewing, **Ellen Coleman**, Ewing, and **Terri Miller**, West Trenton all assisted with our maple sugaring operation this past winter. Nettie also came in to staff the facility during a hike in January.

Aaron Frankel, Hopewell, came in to assist with a variety of chores including scanning 35mm slides onto disk.

Al Fitipaldi, Titusville, built a new bird feeder for the wildlife blind feeding station. The feeder has been installed and is in use out at the blind.

Around the Park

❁ An unusually cold winter and perhaps a light crop of pine cones to our north, forced some bird species that normally winter further north to spend some time here in WCSP. White-winged crossbills and pine siskins were both spotted near the Nature Center in February.

❁ The Nature Center feeding station hosted an unusually large number of american goldfinches this past winter.

❁ Some interesting waterfowl showed up on the Delaware just north of the Washington Crossing Bridge in January. Ring-necked ducks, red-headed ducks, goldeneyes, buffleheads and hooded and common mergansers were spotted. Bald eagles have also been seen in the park and soaring above the river.



SOME WOODLAND WILDFLOWERS TO LOOK FOR THIS SPRING IN WASHINGTON CROSSING STATE PARK



Spring-beauty *Claytonia virginica*
Photo: Wayne Henderek



Common Blue Violet
(Confederate Variety)
Viola papilionacea
Photo: Wayne Henderek



Trout-lilly *Erythronium americanum*
Photo: Wayne Henderek



Bloodroot *Sanguinaria canadensis*
Photo: Wayne Henderek



Jack-in-the-pulpit *Arisaema sp.*
Photo: Wayne Henderek



Cut-leaved Toothwort
Dentaria laciniata
Photo: Wayne Henderek

SPRING PROGRAMS

AT THE NATURE CENTER

The following is a list of activities being offered through the Nature Center at Washington Crossing State Park in Titusville, NJ. Some programs are offered free without registration requirements; some will require advanced registration as indicated below. A fee will be charged to motor vehicles entering the park on weekends and holidays 5/24 - 9/7 (Memorial Day weekend through Labor Day). All programs will initially meet at the Nature Center unless otherwise indicated. Attendance is limited and is available on a first-come, first-served basis. Children must be accompanied by an adult. In the event of inclement weather, some programs might be canceled. It is always advisable to call ahead before coming out. Phone: (609) 737-0609.

NATIVE AMERICANS OF THE AREA OF THE PARK (all Ages) Saturday April 4, 1:00 p.m. **Jim Wade**, former archivist and researcher with the N.J. State Museum will discuss primitive stone tool use by Native Americans in central New Jersey. Emphasis will be on the significance and importance of the Indian way of life during the spring season, focusing on the activities of community fish gathering, hunting and village life. The program will include a slide presentation and Native American artifacts will be on display. Free.

GREENER TODAY FOR A GREENER TOMORROW (all ages) Saturday April 18, 12:00 p.m. – 4:30 p.m. Come and enjoy Earth Day activities at the Nature Center on April 18 from 12:00 - 4:30. Learn about recycling and renewable energy through games and crafts. There will also be stations on New Jersey's different environments coastal, highlands, and the pine barrens. Come and go as you please with friends and family, no pre-registration or fee is required. Event will be held rain or shine.

SOLAR OBSERVATION (all ages) Sunday April 19, 1:30 - 3:30 p.m. View magnetic sun storms safely through special filters on two telescopes. Observe sun spots, solar flares, prominences and other solar phenomena. Learn how these storms can affect the earth as well as other interesting facts about Earth's closest star. **Gene Ramsey** of the **Amateur Astronomer's Association of Princeton** will lead this activity. Free. Clear skies required. Free.

WILD EDIBLE PLANTS (3 yrs. - adult) Sunday April 26, 1:30 - 3:30 p.m. Participants will learn to identify and prepare some of the many native and introduced plants which earlier inhabitants of the area used to supplement their diets. This program will be led by plant lore enthusiast **Pat Chichon** of Lambertville. Bring a pair of plant clippers and a garden trowel. Advanced registration required. Materials charge: \$1.00 per participant.

SPRING BIRD WALK Sunday May 3, 8:30 a.m. Come and join **Lou Beck** of **Washington Crossing Audubon** as we peruse the park for spring migrants and summer resident bird species. Meet at the Nature Center. Free.

SOLAR OBSERVATION (all ages) Saturday May 9, 1:00 - 3:00 p.m. View magnetic sun storms safely through special filters on two telescopes. Observe sun spots, solar flares, prominences and other solar phenomena. Learn how these storms can affect the earth as well as other interesting facts about Earth's closest star. **Gene Ramsey** of the **Amateur Astronomers Association of Princeton** will lead this activity. Free. Clear skies required.

BALDPATE MOUNTAIN HIKE (pre-teen – adult) Sunday May 10, 1:30 – 3:30 p.m. We will take the Blue trail from its trail head on Fiddlers Creek Rd. to the summit overlook. Meet at the parking lot by Neiderer's Pond (Church Rd). Advanced registration required after April 7. Bring a water bottle and wear hiking shoes. Free

STREAM STOMP (6 yrs. - adult) Sunday May 24, 1:30 - 3:30 p.m. Come out for a wet hike as we follow a park stream in search of crayfish, salamanders, caddisflies, frogs, minnows and other stream inhabitants. Advanced registration required after 4/21. Park vehicle entrance fee: \$5.00 per car.

PRETZEL JAR TERRARIUMS (all ages) Sunday May 31, 1:30 - 3:00 p.m. The forest floor is a fascinating community with its own unique woodland wildflowers, ferns, mosses and other organisms. Join us and build one of these ecosystems in a jar to take home. Advanced registration required after 4/28. Park vehicle entrance fee: \$5.00 per car.



Nature Center Programs continued

FAMILY NATURE WALK (All Ages) Sunday June 7, 1:30 – 2:30 p.m. This is an informal naturalist-guided trail walk. Park vehicle entrance fee: \$5.00 per car.

PALEO STONE TOOL MAKING IN A NORTH AMERICAN ICE AGE (all Ages) Saturday June 20 11:00 a.m. – 4:00 p.m.
Jim Silk, Reconstructive Lithic Technologist and stone tool maker presents a demonstration and discussion about stone tool making technologies of the Paleo Ice Age 10,000 to 13,500 years ago. This program explains the manufacture of specialized stone tools that were used by early Native North Americans in adapting to their harsh environment. Paleo artifacts and replications will be displayed throughout the program.

STREAM STOMP (6 yrs. - adult) Sunday June 21, 1:30 - 3:30 p.m. Come out for a wet hike as we follow a park stream in search of crayfish, salamanders, caddisflies, frogs, minnows and other stream inhabitants. Advanced registration required after 5/19. Park vehicle entrance fee: \$5.00 per car.

COMPASS BASICS (9 yrs - adult) Saturday June 27, 1:00 - 3:00 p.m. Participants will learn everything they ever wanted to know about the protractor compass. They will then use their new-found skills to navigate a compass course that will take them over hills, across streams, along trails and through forests to a mysterious hidden site known as “Haunted Hollow”. Advanced registration required after 5/22. Bring a protractor compass if you have an instrument of your own. If not, we will provide one. Advanced registration required after 5/26 Park vehicle entrance fee: \$5.00 per car.

FAMILY NATURE WALK (All Ages) Sunday June 28, 1:30 – 2:30 p.m. This is an informal naturalist-guided trail walk. Park vehicle entrance fee: \$5.00 per car.

SPRING PROGRAMS AT THE VISITOR CENTER MUSEUM

Call (609) 737-9303

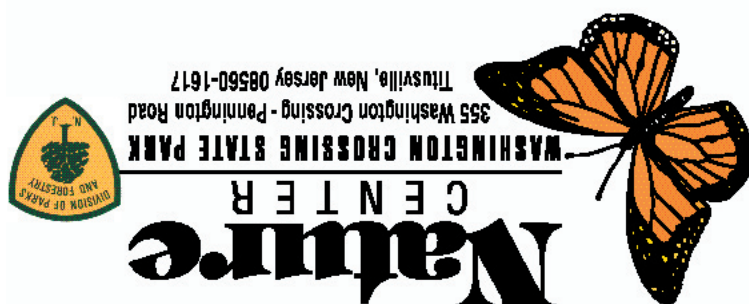
MUSKET FIRING DEMONSTRATION. Saturday April 4, 2:00 p.m. Join a Park Historian for an interpretive talk about some of the weapons used during the American Revolution and their use during the Battle of Trenton. Included will be a musket firing demonstration.

SPIRIT OF THE JERSEYS ANNUAL HISTORY FAIR. Saturday, May 2, 11:00 a.m. – 5:00 p.m. Experience three centuries of New Jersey history all in one place! A historical festival for all ages with live music, exhibits, food, historical demonstrations & crafts, dancing, children activities and more!

MUSKET FIRING DEMONSTRATION. Saturday June 6, 2:00 p.m. Join a Park Historian for an interpretive talk about some of the weapons used during the American Revolution and their use during the Battle of Trenton. Included will be a musket firing demonstration.



New Jersey Department of Environmental Protection



NATURE'S *Grapevine*

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